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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/190,208	11/13/1998	JIASHU CHEN	CHEN3-1	6397

7590 08/26/2003

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EXAMINER	
LAO, LUN S	
ART UNIT	PAPER NUMBER
2643	16

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/190,208	CHEN ET AL.	
	Examiner	Art Unit	
	Lun-See Lao	2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Introduction

1. Claims 1-14 remain pending. This action is in response to the appeal brief filed 07-09-2003.

2. Since this application is eligible for the transitional procedure of 37 CFR 1.129(a), and the fee set forth in 37 CFR 1.17(r) has been timely paid, the finality of the previous Office action is hereby withdrawn pursuant to 37 CFR 1.129(a). Applicant's appeal brief submission after final filed on 07-09-203 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 7-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Mayers (4,817,149).

Consider claim 11, Mayers teaches an apparatus for providing an interaural time delay in a digital 3D sound system, comprising:

Means for selecting one of a plurality of available first time delays (see fig.1, 116 which is fig.20 (TD + 0.67millisecond (VAR TD)) having a first resolution between each of said plurality of available first time delays (see col.13 lines 35-68);

Means for additionally selecting one of a plurality of available second time delays (see fig.1 104 which is fig.15 (including delay time table from minimum 0.0 to maximum 0.67ms)), each (some) of said plurality of available second time delays (see fig.1, 104 which is fig.15 (including a delay time table from minimum 0.00 to maximum 0.67ms)) being less than said first resolution (see fig.1, 116 which is fig.20 (TD + 0.67millisecond (VAR TD) and col.13 lines 35-68); and

means for adding (see fig.1, (168)) said selected first time delay (see fig.1, 116 which is fig.20 (TD + 0.67millisecond (VAR TD)) and said second time delay (see fig.1, 104 which is fig.15 (including a delay time table from minimum 0.00 to maximum 0.67ms) to provide a desired interaural time delay for use in said digital 3D sound system to create a perceived positional sound (see col.6 lines 23-55).

Consider claims 12-14, Mayers teaches the apparatus for providing an interaural time delay in a digital 3D sound system of desired interaural time delay relates (see fig.1 116 which is fig.20) to a desired interaural time delay (see fig.1, 104 which is fig.15)) for one ear of a listener (see fig.1, (190L or 192R)); and said first time delay (see fig.1, 116 which is fig.20 (TD+ 0.67millisecond (VAR TD)) relates to a desired interaural time delay (see fig.1, 104 which is fig. 15) for a second ear of said listener (see fig.1, (190L or 192R) and col.13lines 35-68); and the plurality of available time delays are based on a sampling rate of a digital audio signal (see fig.20,(120, 122, 124, 126, 128, 130, 134)(VAE TD)); and the apparatus for providing an interaural time delay in a digital 3D sound system comprises:

means for fixing (0.67 millisecond delay independently) a first interaural time delay (fig.1, 116 which is fig.20, and col.13 lines 35-68) with respect to a first ear of a listener (see fig.1 (190R or 192L)); and

means for providing said -desired interaural time delay (see fig.1, 104 which is fig. 15) with respect to a second ear (see fig.1 (190R or 192L)) of said listener (see col.9 lines 50-63).

As to claims 7-10, these are method claims of claims 11-14, respectively. Thus note claims 11-14, respectively, for rejections.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers (US PAT. 4,817,149) in view of Matsumoto (US PAT. 5,381,482).

Consider claim 1, Mayers teaches a digital delay line for use in a 3D audio sound system, comprising:

a first delay module providing a choice of delay within a first resolution for use in said 3D audio sound system (see fig.20 (118(TD)); and

a second delay module in series with said first delay module, said second delay module providing a choice of a plurality of additional fractional delays (see fig.10 (120-134, VAR TD))),

wherein said first resolution (118, TD) is added to said additional fractional delays (120-134 VAR TD) for use in said 3D audio sound system to create a perceived positional sound (see col.13 lines 35-68).

Matsumoto teaches a digital delay line for use in a audio sound system (fig. 4), wherein a second delay module (#32, 33) produces an additional delay (0.7ms) which is a fraction of / less than a first delay (20ms) produced by a first delay module (#40) in series. See col. 9, line 15 – col. 10, line 55. Given the teaching of Matsumoto, it would have been obvious to set the additional delay produced by the second delay module in Mayers to a value which is a fraction of / less than the first resolution/delay. In so doing, the sound would have appeared more naturally (Matsumoto, col. 1, lines 45-52).

Consider claims 2-4 and 6, Mayers teaches the digital delay line for use in a 3D audio sound system of first delay module comprises: a first-in, first out buffer (see fig.20 (TD)); and the digital delay line for use in a 3D audio sound system of second delay module comprises: a choice of any one of a plurality of polyphase filters (see fig.20, (TD and VAR TD)), each of said polyphase filters providing an additional fraction inherently (by positional control computer set up) delay less than said first resolution (see col.13 lines 35-68); and the digital delay line for use in a 3D audio sound system of further comprising: a localization control module comprising an interaural time delay look-up table associating desired sound source locations with a particular interaural time delay

(see fig.15 and col.9 lines 49-63) and the digital delay line for use in a 3D audio sound system the first resolution is based on a sampling rate of a digital audio signal (see fig.20 (118, TD) and col.13 lines 35-68).

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Myers (US PAT. 4,817,149) as modified by Matsumoto (US PAT. 5,381,482) as applied to claims 1-4 above, and further in view of Nagata (US PAT. 5,974,154).

Consider claim 5, Mayers and Matsumoto do not teach clearly the digital delay line for use in a 3D audio sound system of the localization control module further comprises: an integer and fractional delay selector adapted to determine a first time delay for use by said first delay module and said additional fractional delay for use by said second delay module.

However, Nagata teaches an integer (see fig.2, 61) and fractional (see fig.2, 71) delay selector adapted to determine a first time delay for use by said first delay module and said additional fractional delay for use by said second delay module (see col.4 line 60-col.5 line67).

Therefore, it would have been obvious to one of ordinary skill in the art at time the invention was made to combine the teaching of Nagata into the teaching Myers and Matsumoto to provide an effector exhibiting improved operability for many and unspecified users, when applied to a karaoke amplifier or the like.

Response to arguments

8. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (703) 305-2259 The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao,Lun-See
Patent Examiner
US Patent and Trademark Office
Crystal Park 2
(703305-2259

DUC NGUYEN
PRIMARY EXAMINER